EE151

COST-MINIMIZATION OF LORLATINIB VERSUS ALECTINIB FOR FIRST LINE TREATMENT FOR TREATMENT OF ALK-POSITIVE NON–SMALL-CELL LUNG CANCER FROM THE BRAZILIAN PRIVATE HEALTHCARE SYSTEM PERSPECTIVE

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INRODUCTION

Lung cancer (LC) has clinical and epidemiological importance, becoming relevant in the process of planning and managing health actions in the oncology field. LC is one of the most prevalent cancers in men and women and has the highest mortality rate of all cancers except non-melanoma skin cancer(excluding non-melanoma skin cancer).(1-3) According to the literature, approximately 85% of cases are non-small cell lung cancer (NSCLC) (4,5) and, among these, approximately 3% presents the ALK+ translocation. (6) It is important to highlight that ALK translocation is a separate clinical entity, and highly responsive to treatment directed to the molecular event which induces this cancer.

OBJECTIVE

The aim of this analysis is to compare costs between lorlatinib and alectinib in the ALK+ NSCLC in first line treatment from the Brazilian private healthcare system perspective.

METHODS

Randomized clinical trials were searched, aiming to find head-to-head comparisons between lorlatinib and alectinib. As only direct comparison trials with crizotinib were found, a systematic review with network meta-analysis (NMA) was developed to compare the efficacy (PFS and OS) and safety of lorlatinib with alectinib, with crizotinib as the common comparator.

Based on the NMA results, a cost-minimization was developed. Treatment costs were calculated considering the list price approved by government in February 2022 and the dosage of each medicine included in the model. The analysis was conducted from the perspective of the Brazilian Private Healthcare System and a time horizon of one year was applied, which was considered sufficient to assess changes in drug treatment costs (intervention and comparators).

RESULTS

In terms of PFS, the NMA showed that lorlatinib was superior to alectinib, brigatinib, and crizotinib on fixed-effect analyses, as shown on Table 1 bellow.

Table 1. NMA results for progression-free survival, fixed-effect.

	Alectinib	Brigatinib	Crizotinib	Lorlatinib
Alectinib	-	1.07 (0.69 – 1.65)	**2.19 (1.66 – 2.89)**	**0.61 (0.38 – 0.99)**
Brigatinib	0.93 (0.61 – 1.44)	-	**2.04 (1.47 – 2.84)**	**0.57 (0.34 – 0.95)**
Crizotinib	**0.46 (0.35 – 0.6)**	**0.49 (0.35 – 0.68)**	-	**0.28 (0.19 – 0.41)**
Lorlatinib	**1.63 (1.01 – 2.63)**	**1.75 (1.05 – 2.91)**	**3.57 (2.43 – 5.24)**	-

For OS outcome, NMA showed that lorlatinib did not differ compared to alectinib, brigatinib and crizotinib in the fixed-effect analysis (Table 2).

Table 2. NMA results for overall survival, fixed-effect.

	Alectinib	Brigatinib	Crizotinib	Lorlatinib
Alectinib	-	1.50 (0.81 – 2.8)	**1.64 (1.09 – 2.45)**	1.17 (0.59 – 2.35)
Brigatinib	0.66 (0.36 – 1.24)	-	1.09 (0.68 – 1.74)	0.78 (0.38 – 1.63)
Crizotinib	0.61 (0.41 – 0.92)	0.92 (0.57 – 1.48)	-	0.72 (0.41 – 1.26)
Lorlatinib	0.85 (0.42 – 1.69)	1.28 (0.61 – 2.65)	1.39 (0.79 – 2.43)	-

For adverse events (AE) grade 3 to 5, lorlatinib showed difference compared to alectinib and crizotinib, no difference compared to brigatinib, on the NMA analysis (Table 3).

Despite the higher rate of AEs related to the use of lorlatinib, treatment discontinuation rate was similar for both comparisons, suggesting class effect for both outcomes.

Table 3. NMA results for adverse events (AE) grade 3 to 5, fixed-effect.

	Alectinib	Brigatinib	Crizotinib	Lorlatinib
Alectinib	-	**1.51 (1.15 – 1.96)**	**1.27 (1.03 – 1.56)**	**1.62 (1.25 – 2.1)**
Brigatinib	**0.66 (0.51 – 0.87)**	-	**0.84 (0.71 – 0.99)**	1.07 (0.85 – 1.35)
Crizotinib	**0.79 (0.64 – 0.97)**	**1.19 (1.01 – 1.41)**	-	**1.28 (1.09 – 1.50)**
Lorlatinib	**0.62 (0.48 – 0.80)**	0.93 (0.74 – 1.18)	**0.78 (0.67 – 0.92)**	-

In the cost-minimization analysis, with an annual cost of BRL 344,0 thousand per patient per year, lorlatinib has the lowest treatment cost when compared with alectinibe, which showed a cost of treatment per patient per year of BRL 368,2 thousand.

The lower cost of treatment per patient per year is also maintained in comparison with brigatinib. The lowest cost of brigatinib appears only in the first month, once the first month of treatment the dosage is lower for this comparator.

Therefore, a first line patient with advanced ALK+ NSCLC treated with lorlatinib will lower the annual cost in BRL 23.75 thousand compared to alectinib and in BRL 5.52 thousand compared to brigatinib. The Table 4 below shows the results for the cost-minimization analysis.

Table 4. Cost-minimization analysis of first-line ALK+ advanced non-small cell lung cancer treatments.

	Treatment cost (30 days)	Treatment cost (1º year)	Treatment cost (2º year onwards)
Lorlatinib	R$ 28,704.91	R$ 344,458.92	R$ 344,458.92
Brigatinib	R$ 25,762.19*	R$ 346.574,28	-
	R$ 29,164.74	-	R$ 349,976.88
Alectinib	R$ 30,684.20	R$ 368,210.44	R$ 368,210.44

Source: September 2021 CMED table, Factory Price 18% for all drugs. *Cost of treatment only for the first month, given the difference in dosage for brigatinib at the beginning of treatment

CONCLUSION

Considering the NMA and the lower cost of treatment compared to alectinib, lorlatinib was incorporated into the Brazilian private healthcare system in May 2022, becoming another treatment option for patients with ALK+ NSCLC.

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Acknowledgments:

This analysis was developed by Pfizer Brazil.

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Presented at the International Society for Pharmacoeconomics and Outcomes Research Annual Meeting; May 7-10, 2023; Boston, MA, USA